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Temperature transmitter

TCH-2100 -TC

Instruction Manual



Version 22.05



CE

1. Safety rules

- read the Instruction Manual before using the transmitter
- check the connections before power on
- ensure environmental conditions according to specification

2. Description

TCH temperature transmitter with 4-20mA output works with thermocouple temperature sensors (TC) **J, K, N, S, R, B** acc. to EN 60584-1.

It converts voltage of thermocouple to standard current signal 4...20mA and derives power from the current loop.

The output signal is a linear function of a sensor temperature.

The transmitter has a plastic enclosure suitable for mounting in type BA connection head or another with mounting holes space of 33mm.

3. Specification

ordering code	measuring range (°C)	thermocouples
TCH-2130- _	0 ... 200	J, K
TCH-2135- _	0 ... 300	J, K
TCH-2140- _	0 ... 400	J, K
TCH-2145- _	0 ... 500	J, K, N
TCH-2150- _	0 ... 600	J, K, N
TCH-2155- _	0 ... 700	J, K, N
TCH-2160- _	0 ... 800	J, K, N
TCH-2165- _	0 ... 1000	K, N
TCH-2170- _	0 ... 1200	K, N
TCH-2175- _	300 ... 1400	S, R, B
TCH-2180- _	300 ... 1600	S, R, B
TCH-2100- _	other according to customer's requirements	

Input:

- temperature sensor TC acc. to EN 60584-1

Accuracy (for ambient temperature $23^{\circ}\text{C}\pm 5^{\circ}\text{C}$): $\pm 0,15\%$ of measuring range

- temperature drift $\pm 0,02\%$ of measuring range/ $^{\circ}\text{C}$

Sensor bias current	ca. 0,0055mA
Minimum range value (URV-LRV)	100°C
Time constant	100 ms

Output:

Range	4-20mA, 2-wire
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Sensor failure indication:

- sensor circuit opened	ca. 24mA
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Power supply (Vs)	12...36VDC / 25mA
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Load resistance	$R_o[\Omega] < (V_s-12)/0,022$
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Output signal limit	ca. 24mA
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Protection	against reverse polarity
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General:

Ambient temperature:	-20°C...+70°C
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Housing	Ø43 x 29 (70g)
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- mounting	2 screws M4, 33mm space
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- case material	self-extinguishing Noryl
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- filling	silicone rubber
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Case ingress protection	IP40 (terminals ... IP00)
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Relative humidity:	0 - 90% RH without condensation
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Electromagnetic compatibility (EMC):	industrial environment
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- resistance	acc. to EN 61000-6-2:2002(U)
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- emissivity	acc. to EN 61000-6-4:2002(U)
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4. Installation and connection

- the sensor wires should be inserted through the central hole
- the transmitter should be mounted in a sensor head with two screws M4
- connect the sensor wires to two **INPUT** terminals with plus and minus polarity
- connect the current loop cables to the two **OUT** terminals with plus and minus polarity
- after correct installation, the transmitter is ready to work,
- the transmitter does not require periodic maintenance.

Transmitter adjustment

The transmitter is calibrated for lower and upper range values: T_{min} and T_{max} .

You can fine the transmitter via multi-turn potentiometer knobs **ZERO** and **SPAN** (see figure).

